

# Controlling Exposure to DIESEL EMISSIONS in Underground Mines

Aleksandar D. Bugarski, Samuel J. Janisko, Emanuele G. Cauda,  
James D. Noll, and Steven E. Mischler

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## Preface

The use of diesel-powered equipment to support processes in the underground mining industry is as popular today as it has ever been. Although using this type of equipment provides many benefits, such as flexibility during development and exploitation phases, it also presents several challenges with respect to managing the safety and health of workers as well as protection of the environment. Where used, diesel equipment is by far the most significant source of a mine worker's exposure to submicrometer aerosols and noxious gases. The implementation of diesel equipment also affects various aspects of a mine's design and operation. To maximize the benefits of this diesel technology and minimize adverse effects, the details of its impact must be well understood by professionals, regulators, and researchers alike.

This document was generated from collective knowledge amassed by researchers at the National Institute for Occupational Safety and Health (NIOSH), Office of Mine Safety and Health Research (OMSHR), who have been conducting diesel-related research for many years. Prior to the production of this text, the authors had found that the information necessary for combating this complex issue in underground mining had been fragmented throughout the literature. The goal of this document was therefore to reconcile this information and make it readily available in one comprehensive reference.

This document introduces the elements necessary for developing comprehensive, mine-specific programs for reducing the exposure of underground miners to aerosols and gases emitted by diesel engines. The authors hope that this publication can be used as both a practitioner's guide and a teaching aide in this exciting and rapidly evolving area of mine health and safety.

The authors could not have completed this project without the assistance from experts in industry, labor, academia, and government. We thank these individuals for their tireless efforts on this project.